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Jane Dee Hull, Governor
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DATE: June 16, 2000

TO: Laboratory Director and QA Manager

FROM: Wesley B. Press, Bureau Chief

SUBJECT: Information Update #62

NOTE: If any problems occur with this web site, please call 1-800-952-0374 or (602) 255-3454 extension 205, 221 or 222. Thank You.

1. In the Information Update #59 (October 15, 1999), the requirement and the process for the laboratories to have "current" MDLs (Method Detection Limits) for each analyte reported were discussed. To verify that the MDL is still current, a suggestion was made in the Update to analyze an LCS (Laboratory Control Sample) at the reporting limit periodically. Since then, questions have been posed by the laboratories as to what is considered current and what is the acceptance criteria for LCS? Our Office, after much discussion, has drafted the following policy to be used by the laboratories to decide if the MDLs are current. This is a DRAFT POLICY and we are inviting your comments. Please fax your comments to (602) 255-1070.

    a. By monitoring the instrumental response:

       The laboratory could collect instrumental responses from 20-30 reporting limit standards (either primary or secondary) from analytical runs after an MDL study is completed. The acceptance criteria for the collected data points is established either by calculating ± 3SD of the instrumental responses or by calculating ± 50% of the average of the instrumental responses.

    b. Changes to the sample preparation process:

       Any time significant changes are made to the sample preparation process, a new MDL study must be performed. If any instrumental changes are made, but the criteria in item #a is met, then there is no need to perform a new MDL study.

    c. The reference method or regulation specifies a frequency:

       If a reference method or a regulation (Drinking Water Certification Manual requires an annual MDL) specifies a frequency for performing an MDL study, that frequency must be met.

The laboratories should look for a trend in the above control chart (item a). The laboratories can then

take corrective actions to bring the responses to within the acceptance limits. If unsuccessful, a new MDL study should be performed for the failed analyte.

It is highly recommended that an LCS (a reference material that has gone through the entire sample preparation process) be analyzed periodically and the percent recoveries monitored.

2. We received a clarification on the TTHM (Total Trihalomethanes) analytical requirement on the water systems and the appropriate DWAR (Drinking Water Analysis Report) form to be used for reporting from the Arizona Department of Environmental Quality (ADEQ):

    a. The TTHM form that should be used by all the water systems who are currently monitoring for TTHMs is on the ADEQ web page (DWAR 7, revised 2/8/00)

    b. The second form with TTHM and HAA5 (Haloacetic Acids) was being used by systems in Arizona which served >10,000 people (which fell under Interim Enhanced Surface Water Treatment Rule) during the interim monitoring period only. Those systems will start to use the DWAR 7 form for TTHM after the interim monitoring period is over.

    c. On 12/16/2001, systems serving >10,000 people will start to monitor for both TTHM and HAA5 and will use the form that is currently being modified with stakeholders input. The other systems will continue to use DWAR 7 form TTHM, until 12/16/2003. At that time all systems that disinfect will have to monitor for both TTHM and HAA5 and will report on the form that is being modified.

3. The following methods have now been approved in Arizona for compliance testing:

    a. Method 1631, Revision B, "Mercury in Water by Oxidation, Purge and Trap, and Cold Vapor Atomic Fluorescence Spectrometry, USEPA, EPA-821-R-99-005, May 1999", for analysis of wastewater compliance samples.

    b. Method 1657, "The Determination of Organo-Phosphorous Pesticides in Municipal and Industrial Wastewater" contained in "Methods for the Determination of Nonconventional Pesticides in Municipal and Industrial Wastewater, Volume 1, USEPA, Office of Water, Revision 1" for analysis of wastewater compliance samples.

    c. Method 1613, Revision B, "Tetra-through-Octa-Chlorinated Dioxins and Furans by Isotope Dilution HRGC/HRMS", 40 CFR, part 136, App. A, 7-1-98 Edition for analysis of wastewater compliance samples.

4. Questions have been posed in the past regarding the appropriate preservation technique for 2-chloroethyl vinyl ether in water samples. Concerns were raised on the effect of acid on this analyte and the recovery of this analyte from acidified samples. The Merck Index says "Even dil(ute) acids produce hydrolysis to acetaldehyde and ethylene chlorohydrin (2-chloroethanol)". Recently similar concerns were raised by the QA Unit of ADEQ. EPA's Solid Waste Methods Information Communication and Exchange (MICE) stand on this issue is as follows:

    "2-chloroethyl vinyl ether has long been known to break down rapidly in an acidified water sample. (SW 846, Chapter 4,) Table 4-1 does not differentiate the preservation techniques based on the specific analytes of interest for a given project. (EPA's) OSW (Office of Solid Waste) views those

details as a critical part of the sampling and analysis plan and quality assurance project plan for any given effort. If 2-chloroethyl vinyl ether is, in fact, a target analyte for a given project, then the only way to obtain useful data for that analyte is to collect an unpreserved water sample and analyze it. If other analytes are involved, one generally collects a second aliquot of the sample and acidifies it to preserve the other analytes, thus two analyses are conducted."

To comply with Arizona Regulations (A.A.C. R9-14-615, G3a) which require "Actual scientifically valid and defensible results" to be reported on compliance testing, this degradation issue will need to be dealt with by each laboratory.

5. **Please complete the drinking water MDLs and Reporting limits (RL) survey** for SOCs (Synthetic Organic Chemicals) if it is applicable to your facility. The response received will be used to demonstrate to ADEQ that the proposed RL requirement by ADEQ may not be practical to achieve. Toxaphene reporting limit (RL) values differ for a single sample and composite sample. ADEQ lists a composite MDL value for toxaphene in R18-4-219, ADEQ Safe Drinking Water Rules. Please fax your response to (602) 255-1070.

6. If you have any questions regarding the Updates, or if you have any technical questions that need clarification, please call or send e-mail to Prabha Acharya, Program Manager, Technical Resources and Training at the Laboratory Licensure. A table of contents to all the Information Updates published is also available.